

Additional Information and Requirements for Oilfield Boilers

Information Paper IP-2016-10-02

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1. Scope

This information shall only be applied to oilfield boilers associated with a drilling rig or well servicing unit that have been granted **portable status** by the Chief Inspector of Saskatchewan. Please refer to *IP-2008-04-01 Acceptance of Portable Pressure Equipment* for more information on portable equipment status in Saskatchewan.

All references to a boiler in this paper shall be taken to mean an oilfield boiler as defined in the [Definition](#) section included in this paper. These types of boilers are often referred to as:

- rig boilers;
- oil rig boilers; and/or
- wellsite boilers.

2. Exclusions from this Paper

The scope of this information paper shall not be applied to any other type of boiler whether in the oilfield or not. This paper shall not be used to define guarded plant requirements for non-portable, non-oilfield boilers.

3. Definition

An oilfield boiler is:

- a high pressure, steam boiler that has been granted portable status by TSASK; and
- associated with a drilling rig or well servicing unit.

4. General Requirements for all Oilfield Boilers

4.1. Determining Boiler kW Rating – Operator Supervision Requirements

Boiler kilowatt rating is determined by multiplying the total heating surface:

- in square metres by 10.8 kW/m²; or
- in square feet by 0.929 kW/ft².

4.2. Operator Supervision Requirements

An operator with a valid licence of the appropriate class shall be in attendance within range of the boiler alarm(s) at all times. If any required automatic controls are missing or malfunctioning or if the boiler is being operated under manual control due to an emergency or control failure, the operator **shall be in continuous supervision** at all times and within visual range of the level and pressure gages.

4.2.1. Under 150 kW

Oilfield boilers and boiler plants rated at less than 150 kW do not have mandatory attendance requirements.

4.2.2. Up to and including 500 kW

An **Oilfield A Boiler Operator's licence** entitles the holder to operate a boiler or boiler plant that does not exceed 500 kW in an oilfield location.

4.2.3. Not more than 1000 kW

An **Oilfield B Boiler Operator's licence** entitles the holder to operate a boiler or boiler plant that does not exceed 1000 kW in an oilfield location.

4.3. Registered Boiler Design

The boiler design shall be registered in Saskatchewan with either:

- a Canadian Registration Number (CRN) issued by TSASK (.3); or

- a registered data report (See Alternative to Design Registration Requirements – boilers and pressure vessels, Section 19, The Boiler and Pressure Vessel Regulations or follow the link to the TSASK website for [Alternative to CRN Registration](#)).

4.4. Annual Internal Inspection

All oilfield boilers shall have an annual internal inspection done by a TSASK inspector or by a licensed Pressure Equipment Inspector (PEI) working under a QMS program registered in Saskatchewan. Each boiler shall have a valid inspection certificate indicating the internal inspection has been completed and was satisfactory.

Boilers that move between provinces may have their internal inspection done by another jurisdiction's inspector. Please see [Interprovincial Oilfield Boilers](#) in this paper for more information.

4.5. Valid Licence to Operate

The Licence to Operate is an annual licence that expires on June 30th of every year. A renewal notice shall be sent to the licence holder. If the boiler is to continue to operate, the owner shall make payment to TSASK.

Boilers based in Alberta or British Columbia that may cross provincial boundaries into Saskatchewan are required to have a valid licence to operate for Saskatchewan. Please see the Interprovincial Boilers section in this paper for more information.

4.6. Portable Status

Every oilfield boiler must have portable status in Saskatchewan. Please refer to TSASK Information Paper [IP-2008-04-001 Acceptance of Portable Pressure Equipment](#) for more information on how to apply for portable status.

4.7. Operational Controls

Oilfield boilers shall be equipped with the following automatic controls as a minimum:

- two low water cut offs (LWCO);
- feedwater level control device (may be part of the LWCO);
- high pressure limit control;
- combustion controller and flame scanner; and
- audible or visual alarm (for boilers <600 kW).

For boilers 600 kW or greater, the following additional controls are required:

- an adequate purge cycle per ASME CSD-1 (Controls and Safety Devices for Automatically Fired Boilers);
- lock out controls that prevents a boiler restart on a low water, high water, high steam pressure or flame failure trip; and
- audible **AND** visual alarms that cannot be shut off until the abnormal condition is rectified or the boiler is shut down.

4.8. Log Book

A log book shall be maintained for all oilfield boilers and kept with the boiler at all times. The owner of an oilfield boiler shall ensure that: (Section 53, *The Boiler and Pressure Vessel Regulations*)

- a log book is provided with the boiler and that all information relevant to the operation of the boiler is recorded;
- all information relevant to the operation of the boiler is recorded promptly in the log book by the appropriate person;
- the log book is kept with the boiler at all times; and

- the log book and any other relevant information is available for inspection in written or printed form for at least five years from the date of the last entry.

Log book entries shall include:

- for each shift, the:
 - time, date, number or designation of the shift;
 - printed name and signature of the person providing the supervision of the boiler required by these regulations; and
 - the boiler conditions observed during the shift;
- a description of any abnormal boiler condition observed and any corrective action required or taken;
- any order given that is contrary to, or in addition to, the normal operating procedures, the name of the person giving the order, the time at which the order was given and the reason for giving the order;
- a description of any preventive maintenance procedures carried out, including the testing and recording of all operation logging, control, alarm and safety systems, and the time at which the procedures were carried out; and
- a description of any repairs carried out on any part of the boiler and the name of any person who carried out the repairs.

If the information required in the last two bullets is readily available to an inspector in separately maintained records (ie. maintenance logs), then the information does not have to be recorded in the log book.

Electronic log books shall:

- be authorized for use by the Chief Inspector; and
- be readily accessible to the TSASK Inspector.

4.9. Illegal Equipment

An oilfield boiler that is being operated in Saskatchewan without a valid Licence to Operate shall be deemed illegal equipment and shall be subject to the penalties provided for in *The Boiler and Pressure Vessel Act* for Saskatchewan and the corresponding Regulations.

5. Interprovincial Oilfield Boilers

TSASK shall recognize inspections of oilfield boilers done by the boiler and pressure vessel safety jurisdictions of Alberta (ABSA) and British Columbia (TSBC), subject to the following:

5.1. Internal Inspection Requirements

The inspection completed by either ABSA or TSBC may be accepted provided the inspection is an internal inspection and is documented on a jurisdictional inspection report. For boilers based in Alberta, an ABSA Inspection Certificate shall also be provided along with the inspection report.

5.1.1. Additional Requirements – Boilers >600 kW – ABSA only

For boilers over 600 kW, the additional requirements of *Table One: Additional TSASK Requirements* shall be included as part of the ABSA inspection. The answers to the questions on the form shall all be “yes” or TSASK will not accept the form for the internal inspection.

Table One: Additional TSASK Requirements

	Yes	No		Yes	No
Audible and visible trip alarm	<input type="checkbox"/>	<input type="checkbox"/>	High water level trip with manual reset	<input type="checkbox"/>	<input type="checkbox"/>
HP trip with manual reset	<input type="checkbox"/>	<input type="checkbox"/>	Pre-purge start-up sequence	<input type="checkbox"/>	<input type="checkbox"/>
Low water level trip with manual reset	<input type="checkbox"/>	<input type="checkbox"/>	Flame-failure trip with manual reset	<input type="checkbox"/>	<input type="checkbox"/>
These six items are required in Saskatchewan for boilers > 600 kW					

5.1.2. *Owner Notification to ABSA/TSBC*

Owners are responsible to inform the ABSA/TSBC inspector that the oilfield boiler may be moved into Saskatchewan. The ABSA inspector is then required to complete the additional inspection requirements on the ABSA Rig Boiler Inspection Report (shown in Table One). Owners shall ensure that the additional requirements of Table One are addressed.

The ABSA Rig Boiler Inspection Report shall be submitted by the owner to TSASK with a copy of the current ABSA Certificate of Inspection.

No ABSA internal inspection shall be accepted by TSASK if the additional requirements in Table 1 have not been addressed and a copy of the current ABSA Certificate of Inspection has not been included.

5.1.3. *Annual Licence to Operate Renewal*

If an owner in Alberta or BC wishes to keep their Licence to Operate current, even if the boiler may not be operated in Saskatchewan during the year, they shall:

- pay the annual licence fee to TSASK; and
- submit the ABSA Rig Boiler Inspection Report and Certificate of Inspection or TSBC equivalent with the fee payment.

Failure to provide TSASK with the ABSA Rig Boiler Inspection Report and Certificate of Inspection or TSBC equivalent annually shall result in the cancellation of the licence to operate in Saskatchewan for that boiler. Owners shall then have to reapply for:

- the licence to operate;
- portable status; AND
- submit an installation permit.

6. **Application Requirements for Licences to Operate**

The following clauses highlight the TSASK documentation requirements depending on whether the boiler is new or existing and based in Saskatchewan or Alberta/BC. All applicable fees shall be submitted with the respective forms.

6.1. *New Equipment or Equipment new to Saskatchewan – no valid Licence to Operate*

- TSK-0001 Installation or Repair/Alteration Permit;
- Manufacturer's data report; and
- ABSA Rig Boiler Inspection Report and ABSA Certificate of Inspection or BSCA equivalent *if applicable*.

6.2. *Existing Saskatchewan Boilers with an expired Licence to Operate*

- TSK-0001 Installation or Repair/Alteration Permit;

6.3. *Existing Alberta or BC Boilers with an expired Licence to Operate*

- TSK-0001 Installation or Repair/Alteration Permit
- ABSA Rig Boiler Inspection Report and ABSA Certificate of Inspection or BSCA equivalent.

7. Additional Information or Questions

For additional information or if there are questions or concerns, please contact TSASK:

- By email at info@tsask.ca
- By phone at (866) 530-8599. Please ask to speak to a TSASK Inspector or the Manager, Boiler and Pressure Vessel Safety and Inspections; or
- Visit the TSASK website at www.tsask.ca for more information